This Manual Contains the Following Languages for Product Installation :

- **English Language**
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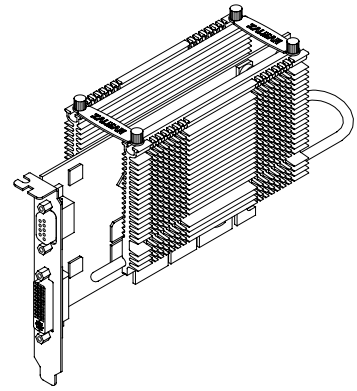
❖ **For a better understanding of the installation process, watch the installation video clip at our website (www.zalman.co.kr)**



1. Features

1) By using a heatpipe, heat from GPU(sometimes referred to VPU, Video Processing Unit) can be dissipated efficiently without a cooling fan
2) The fanless design ensures complete noiselessness and semi-permanent, maintenance-free operation.
3) It can be used on virtually all kinds of graphics cards, so it can be reused with upgraded graphics cards.
   Note : The graphics cards without the heatsink mounting holes or with components that interfere with the heatsink cannot accommodate this product.
4) User can install the quiet cooling fan (ZM80C Option Package 'ZM-OP1', sold separately) without using the bracket for fan attachment.
5) With the optional fan (ZM-OP1), the graphics card will operate in more stable condition by cooling the memories on the card as well as VGA chipset.

2. Specifications

- Weight : 325g
- Heatpipe : Gold Plated Copper Tube
- Dissip. Material : Aluminum
- Dissip. Area : 1200㎠

3. Usable Graphics Card Types

Cards with heatsink mounting holes

Note 1) When using this product with Matrox Parhelia series graphics cards or GeForce FX 5800 (or higher model), the optional fan (ZM-OP1) must be used.

Note 2) When installing on an ATI Radeon 9800 Pro, it is recommended to use the quiet cooling fan (ZM-OP1).

Note 3) If the components on the graphics card interfere in any way with the heatsink components, you cannot use this heatsink. In such a case, you should immediately stop installation and return the product.

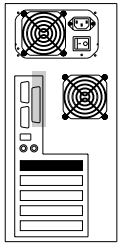
Note 4) Since the heatsink weighs 325g, the graphics card equipped with this heatsink should be attached tightly inside the PC case with a screw when installing. Also special care should be taken while the computer is moved. (Zalman Tech. Co., Ltd. is not responsible for any damage to a system or a graphics card occurring when moving a computer.)

Note 5) The heatsink occupies an adjacent PCI slot.

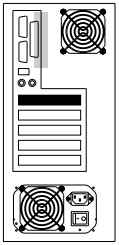
Note 6) Before using this product for any other VGA chipset, please check the compatibility at Zalman's website(www.zalman.co.kr)

Cautions on Installation and Use

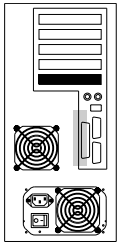
1. The computer should be placed according to the following diagrams in order for the product to function properly. If the set-up is so that the graphics card's GPU faces upwards, then it is not appropriate for this product. If you attempt to adjust the positioning of the computer by flipping it in a reverse direction, the product will not function properly either, so you should place your computer case in a normal position.



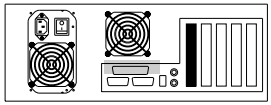
Good (O)
(AGP Slot is
Under the CPU)



Good (O)
(AGP Slot is
Under the CPU)

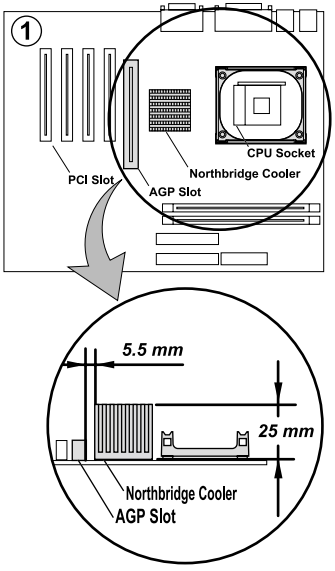


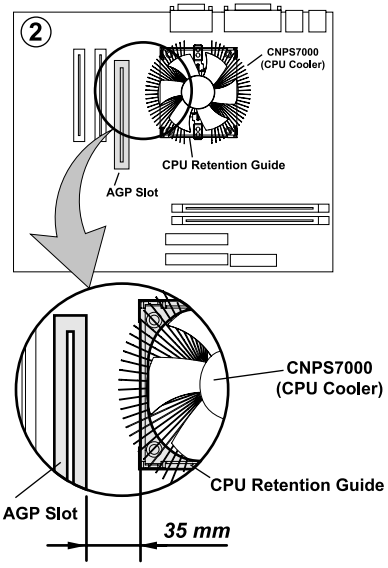
Bad (X)
(AGP Slot is On
Top of the CPU)



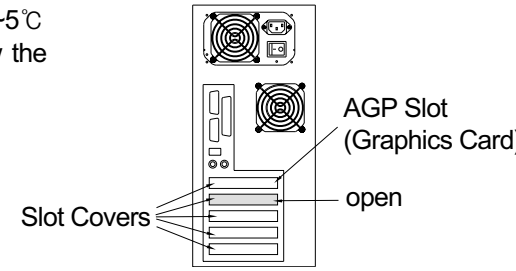
Good (O)
(AGP Slot is to the
Right Side of the CPU)

2. As shown in figure, if the northbridge cooler is 25mm tall(or bigger)and located within 5.5mm from AGP slot, an interference may occur. When used with Zalman No Noise CNPS7000 series cooler, if CPU retention guide is located within 35 mm from AGP slot, ZM80C-HP can not be installed.

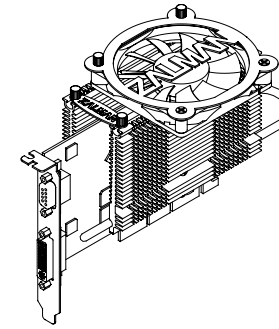




3. The GPU (VPU) temperature can be lowered by 4~5℃ by opening up the slot covers on the case below the AGP slot .



4. While the ZM80C-HP can sufficiently cool itself without a fan, it is designed to accommodate an 80mm fan directly on the heatsink. Therefore, a quiet cooling fan (ZM80C Option Package) can be installed to increase performance. (The ZM80C Option Package (see Components section, #9) is composed of a slim 80mm fan [80x80x15], a fan grill, and necessary parts for attaching. This product is sold separately.)



5. For a complete noiseless system, use the following Zalman products to achieve stable and silent computing environment : ZM300A-APF power supply, CPU cooler of CNPS series, ZM-NB47J mainboard northbridge chipset cooler, ZM-2HC1 heatpipe HDD cooler and ZM-F1 system fan.

ZM300A-APF

ZM-2HC1

ZM-NB47J

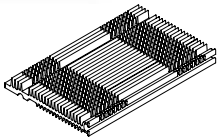
ZM-F1

CNPS6000-XXXX

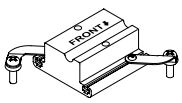
CNPS6500B-XXXX

CNPS7000-XXXX

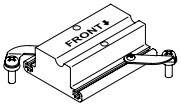
Components



1) One (1) Front Side Heatsink



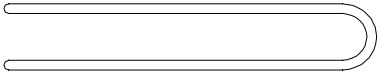
(A)

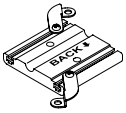


(B)

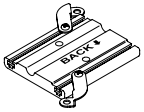
2) Front Side Heatsink Base Assembly A,B

3) One (1) Heatpipe



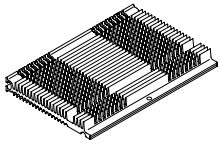


(A)



(B)

4) Back Side Heatsink Base Assembly A,B



5) One (1) Back Side Heatsink

6) One Bag of Assembly Parts

Four (4) Plate Link Nipples

Four (4) Bolt-B

Four (4) Bolt-C

Two (2) Nut-A

Two (2) Rubber Rings

Two (2) Nipples

Two (2) Plate Link

One (1) Thermal Grease

7) One Bag of Spare Parts

Two (2) Bolt-B

Two (2) Bolt-C

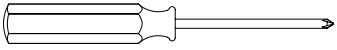
Two (2) Bolt-D

Two (2) Nut-B

Two (2) Rubber Rings

One (1) Thermal Grease

8) One (1) Screwdriver



9) ZM80C Option Package (ZM-OP1, Sold Separately)

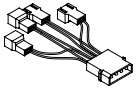
One(1) 80mm Slim Fan

One(1) Fan Grill

Two(2) Fan Bolts

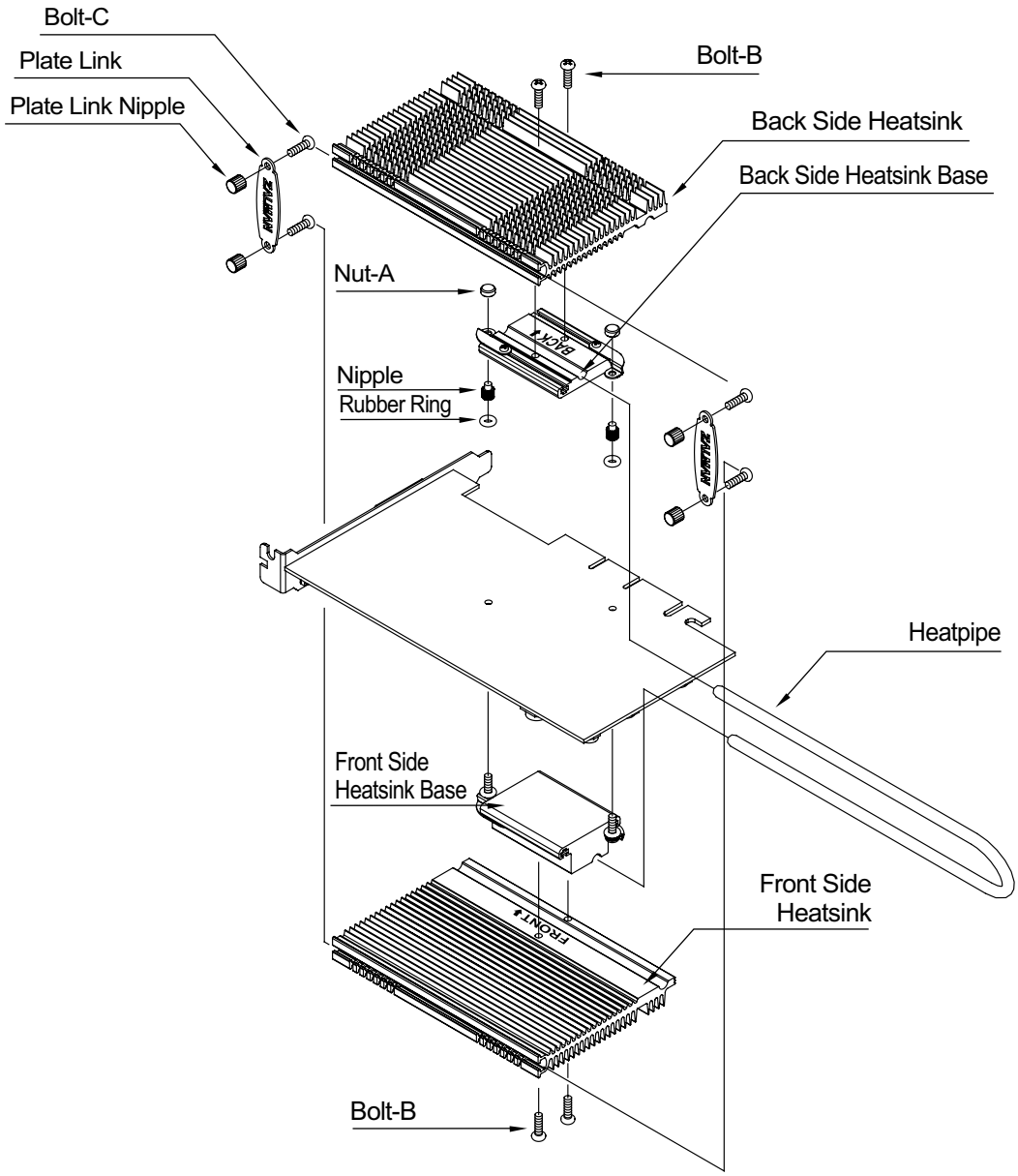
Two(2) Fan Screws

Two(2) Fan Nipples



One(1) Multi Connector 1

Exploded View

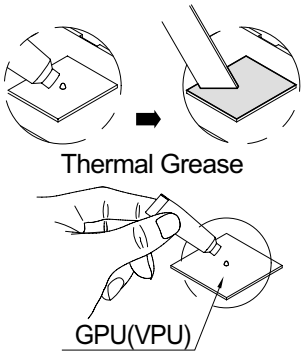


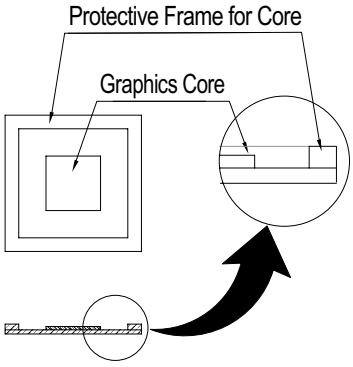
How to Install

1. Spread the Thermal Grease on the GPU(VPU)

1) Clean off the surfaces of the GPU(VPU) and the Front Side Heatsink Base thoroughly.

2) Spread the thermal grease thoroughly on the GPU(VPU). Using a thick piece of paper is recommended for spreading. Many GPUs(VPUs) are concave (center is lower than around the edges), so you should apply more thermal grease at the center of the chip.

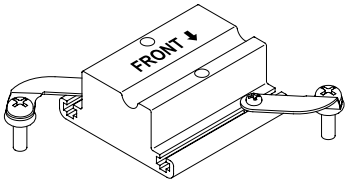




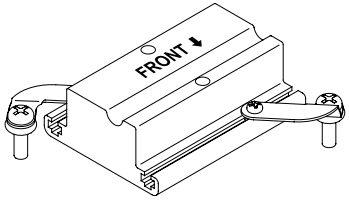
< ATI Radeon 9700 PRO>

2. Choosing the Front Side Heatsink Base Assembly

This package includes two Front Side Heatsink Base Assemblies. If your graphics card is based on Geforce4 Ti or your graphics card has heatsink mounting holes that are spaced far apart, then it is necessary for you to use the Front Side Heatsink Base Assembly B. Otherwise, use Front Side Heatsink Base Assembly A. The only difference between the Front/Back Side Heatsink Base Assembly A and B is the width(A is shorter than B).



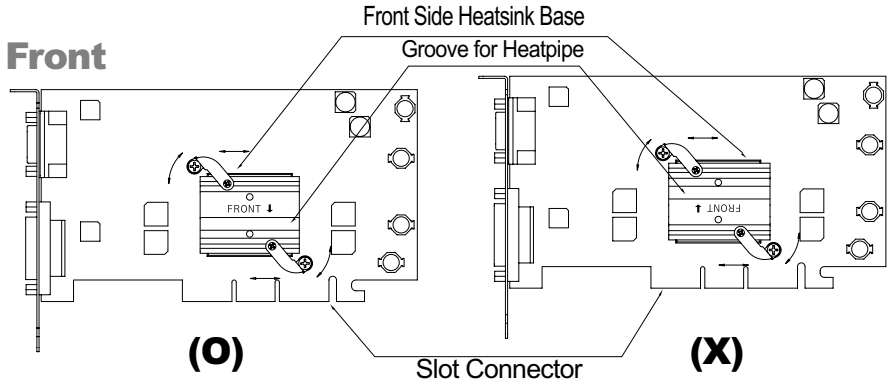
Front side heatsink base assembly A



Front side heatsink base assembly B

3. Locate where the Front Side Heatsink Base Assembly is to be Installed

The arrow (FRONT⬇) should be pointing in the direction of the slot connector when the front side heatsink base is facing in the appropriate direction, as shown in the diagram below. **(Be sure to confirm the positioning. This is very important.)**

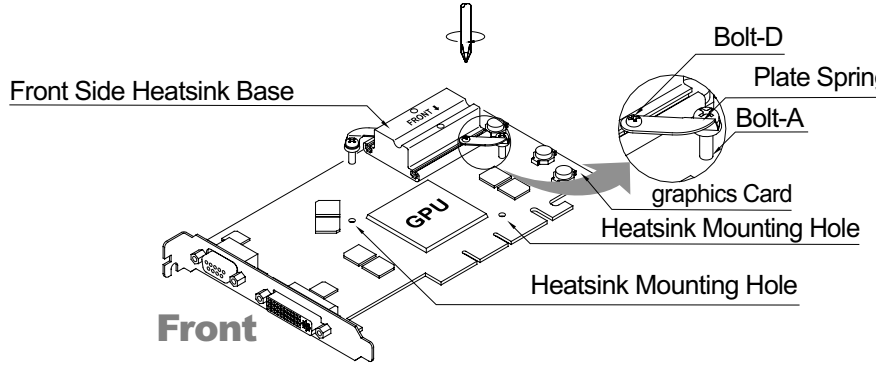


Front Side of the Graphics Card [with the GPU(VPU)]

4. Install the Front Side Heatsink Base Assembly

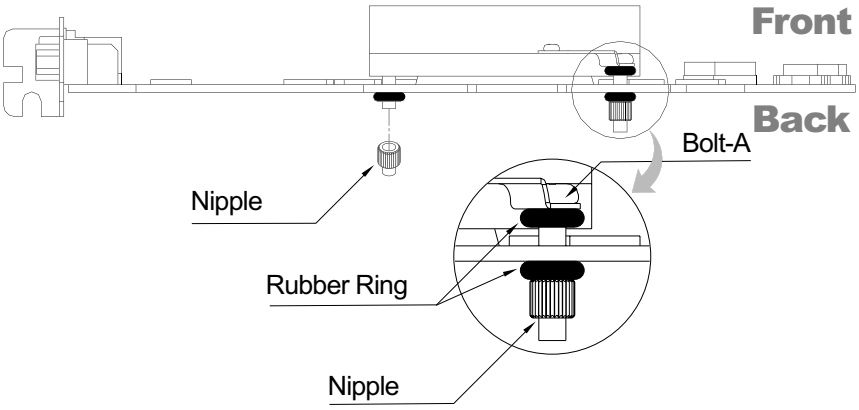
1) The Front Side Heatsink Base Assembly should be centered and tightly pressed onto the center of the GPU(VPU).
2) Unscrew the Bolt-D half a turn, and rotate the plate spring to insert the Bolt-A into the heatsink mounting hole. (**Note** : Do not unscrew the Bolt-D completely!)
3) After the Front Side Heatsink Base Assembly is in place, tighten the Bolt-D

Note) If the plate spring loosens from the base assembly, refer to the installation step #19 to re-assemble it, and start again from the beginning.



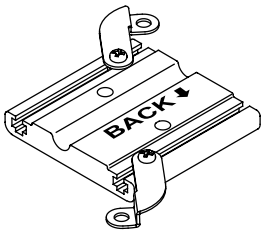
5. Assemble the Rubber Rings and the Nipples

1) Slide a rubber ring onto each Bolt-A protruding out of the back of the card.
2) Screw the nipples onto the Bolt-A, and tighten it with a screwdriver.

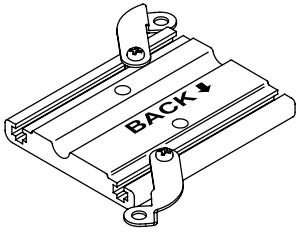


6. Choosing the Back Side Heatsink Base Assembly & Application of Sticker

1) Use the size that corresponds to the appropriate Front Side Heatsink Base Assembly.



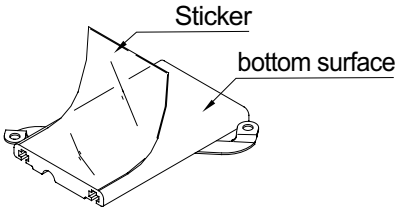
Back side heatsink base assembly A



Back side heatsink base assembly B

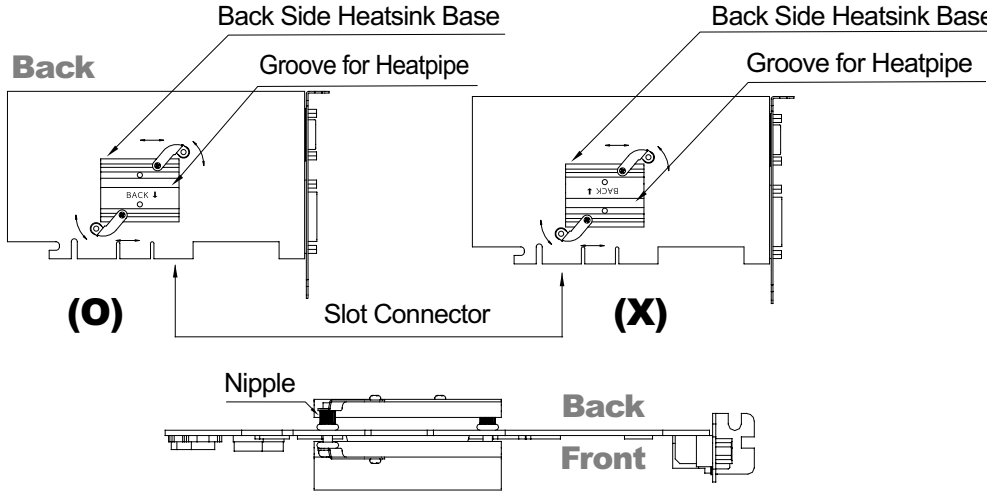
2) After choosing a suitable Back Side Heatsink Base Assembly, attach the sticker (included with product) on the assembly's bottom surface as shown in the diagram.

Note) Use only one sticker of which the size is suitable for the Back Side Heatsink Base. Never use the sticker for the Front Side Heatsink Base.



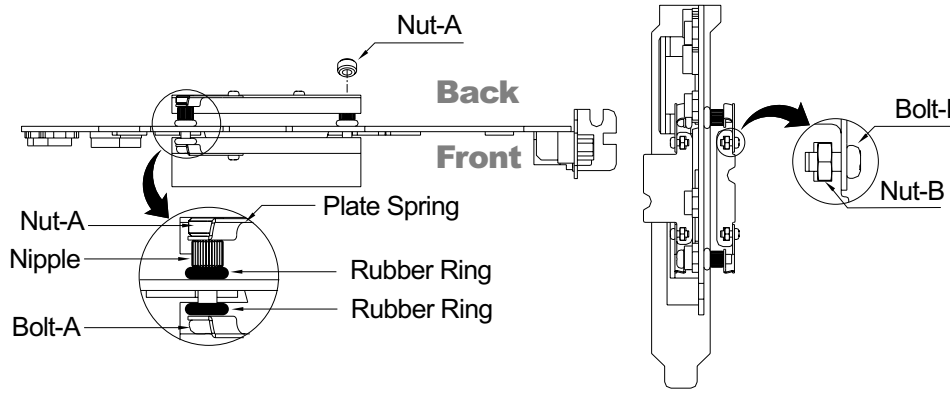
7. Locate where the Back Side Heatsink Base Assembly is to be Installed

1) The arrow (BACK⬇) should be pointing in the direction of the slot connector when the Back side heatsink base is facing in the appropriate direction, as shown in the diagram below.
(Be sure to confirm the positioning. This is very important.)
2) Unscrew the Bolt-D half a turn, and rotate the plate spring so the nipple protrudes through the hole of the plate spring. (Note: Do not unscrew the Bolt-D completely!)
3) After the Back Side Heatsink Base Assembly is in place, tighten the Bolt-D.



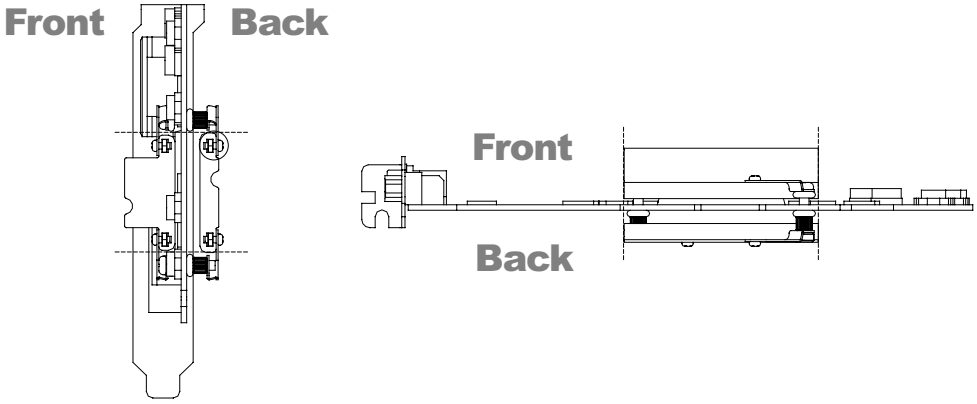
8. Install the Back Side Heatsink Base Assembly

1) Tighten the Nut-A onto the nipple that now has the plate spring in place.
2) Make sure that the two heatsink base assemblies are symmetrically placed in reference to the graphics card, then tighten the Bolt-D completely.



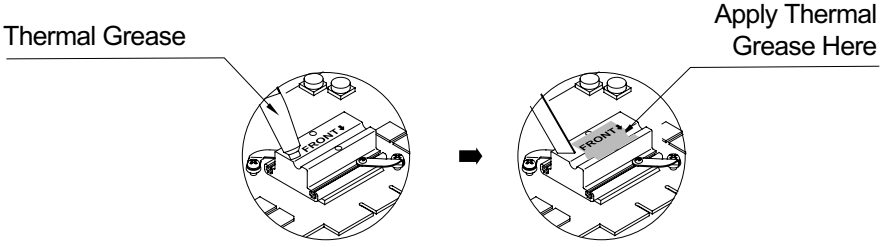
9. Confirm the Placement of the Two Heatsink Base Assemblies

Confirm that the two heatsink base assemblies are symmetrically placed in reference to the graphics card as shown in the diagram. Then, tighten Bolt-A and Bolt-D again so that they will not become loose.

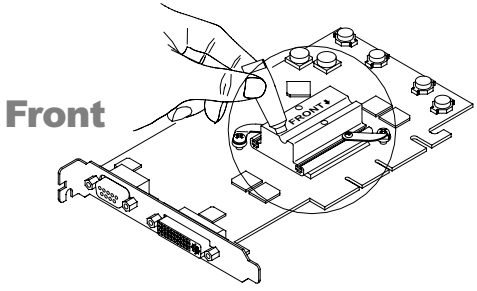


10. Spread the Thermal Grease on the Front Side Heatsink Base

Evenly spread the thermal grease onto the indicated area of the Front Side Heatsink Base as shown in the diagram.

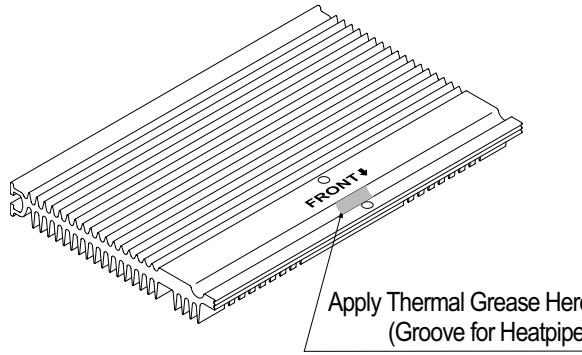


(Front Side Heatsink Base)



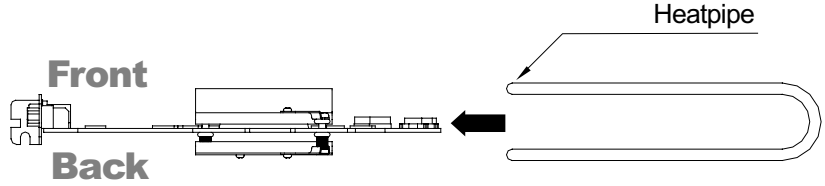
11. Spread the Thermal Grease on the Front Side Heatsink

Evenly spread the thermal grease onto the indicated area of the Front Side Heatsink as shown in the diagram.



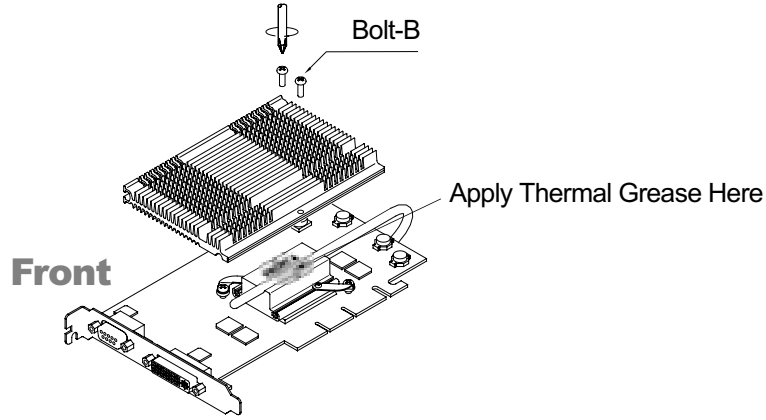
12. Install the Heatpipe

The heatpipe should be inserted on the two heatsink base assemblies (installed on the GPU) as shown in the diagram.



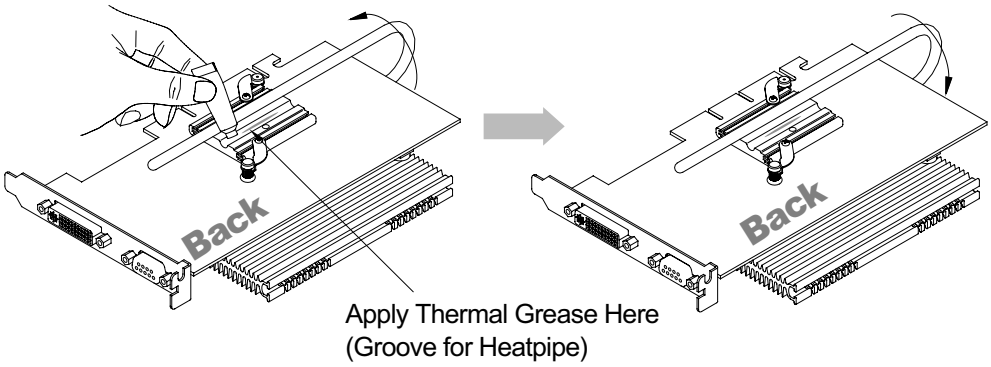
13. Install the Front Side Heatsink

Place the Front Side Heatsink over the Front Side Heatsink Base and slightly screw in the two Bolt-B's.

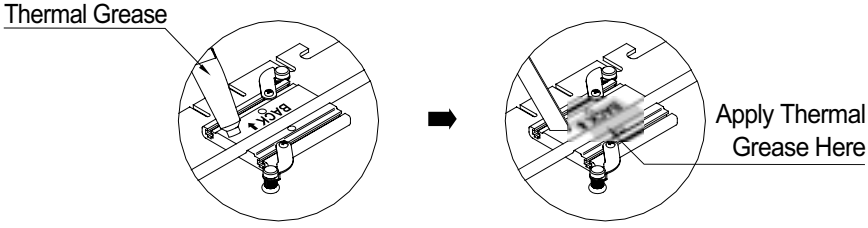


14. Spread the Thermal Grease on the Back Side Heatsink Base

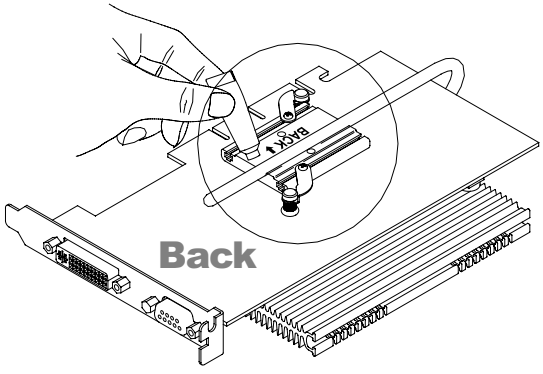
1) Slightly turn the heatpipe in the direction of the arrow in the first diagram, and spread the thermal grease on the base's groove for the heatpipe. Turn the heatpipe back placing it into the groove and re-tighten the Bolt-B installed in step #13.



2) Evenly spread the thermal grease onto the indicated area only.

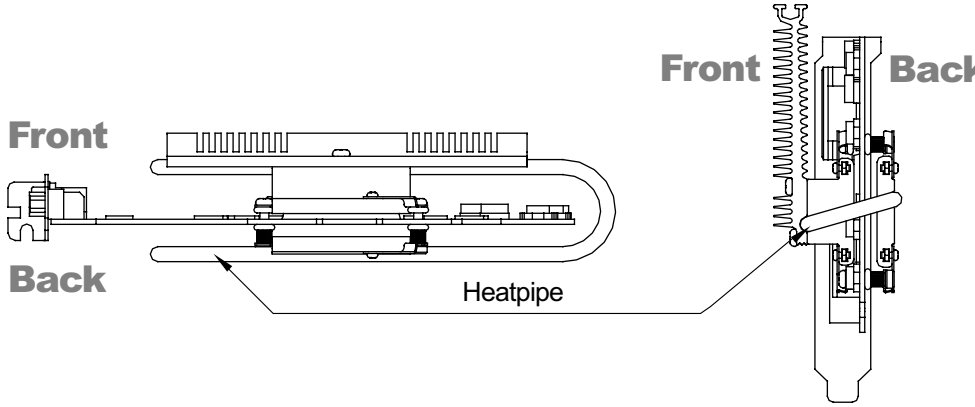


(Back Side Heatsink Base)



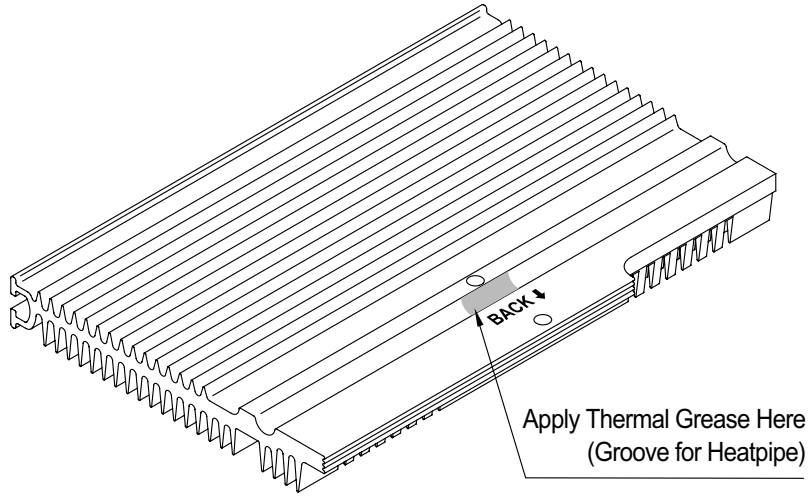
15. Confirm the Placement of the Heatpipe

Confirm that the heatpipe's placement looks like the following diagram when the graphics card is seen from the side view.



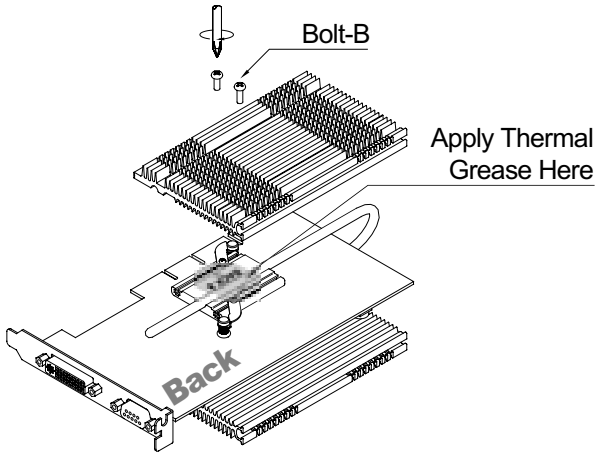
16. Spread the Thermal Grease on the Back Side Heatsink

Evenly spread the thermal grease onto the indicated area of the Back Side Heatsink as shown in the diagram.



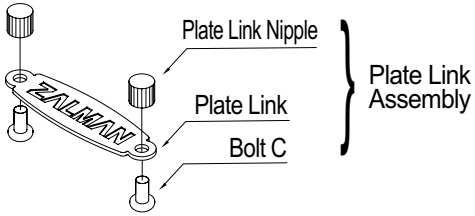
17. Install the Back Side Heatsink

Place the Back Side Heatsink over the Back Side Heatsink Base and tighten it in place with two Bolt-B's.

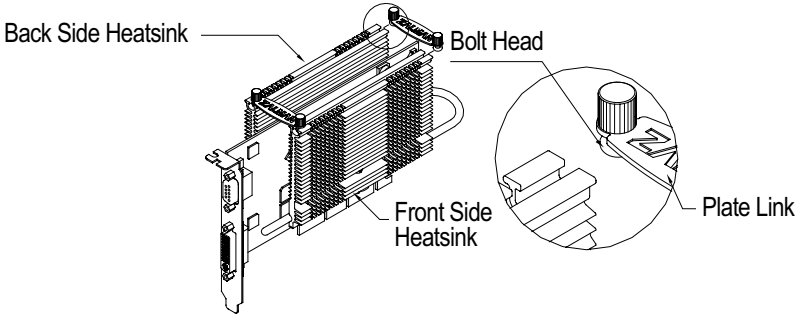


18. Attach Plate Link Assembly

1) Assemble in the order of plate link nipple, plate link, and bolt C, as shown in the diagram.

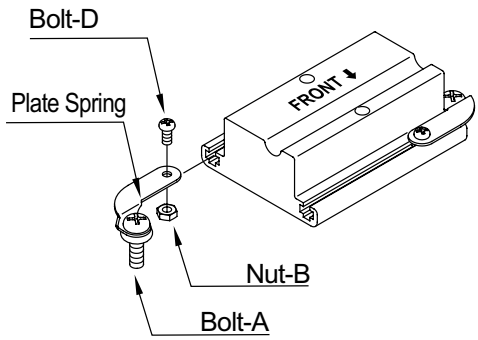


2) Insert the 2 bolt heads on plate link assembly about 5mm into the grooves on the front/back side heatsinks then tighten the nipples by hand. To attach the fan that comes with the ZM80C Option Package, see installation step #20.

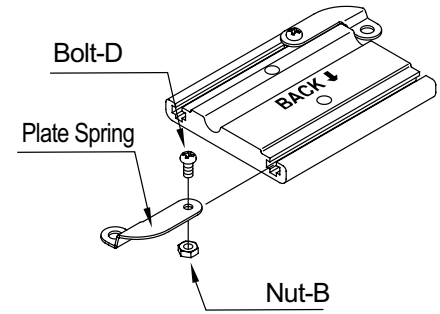


19. If the plate spring separates from the Heatsink Base

1) In a Case concerning the Front Side Heatsink Base : Fasten Bolt-D and Nut-B onto the plate spring and insert the plate spring into the groove on the heatsink base. (Note : Front Side Heatsink Base has 'FRONT ⬇' printed on it)
2) In a Case concerning the Back Side Heatsink Base : Fasten Bolt-D and Nut-B onto the plate spring and insert the plate spring into the groove on the heatsink base. (Note: Back Side Heatsink Base has 'BACK ⬇' printed on it)



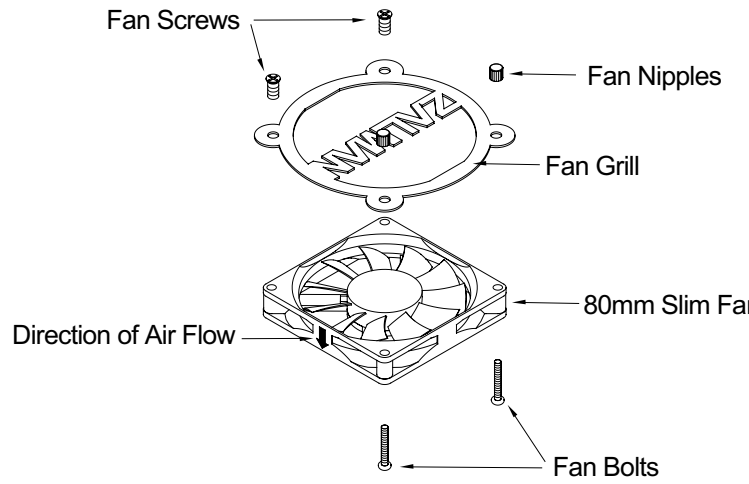
(For Front Side Heatsink Base)



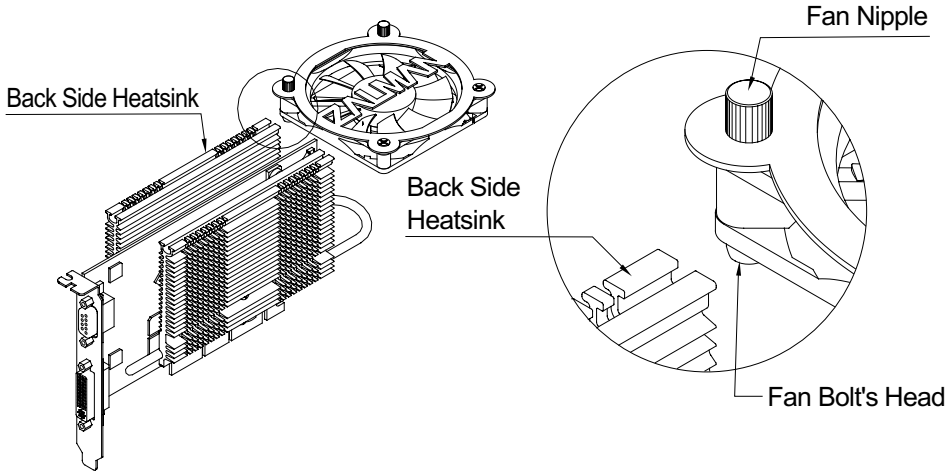
(For Back Side Heatsink Base)

20. How to Install the ZM80C Option Package (ZM-OP1)

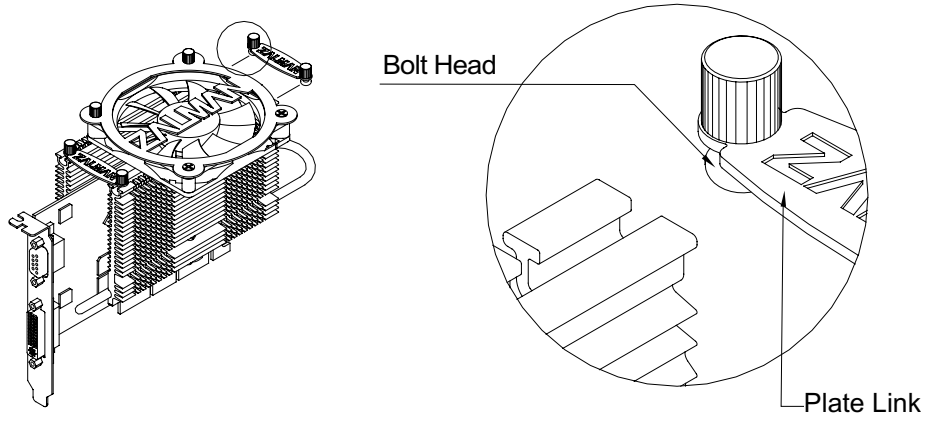
1) Attach the fan grill to the fan as shown in the diagram. Use the two screws to attach the grill to the fan, and use the two bolts to attach the nipples onto the fan and the grill. (Note: An arrow on the fan indicates the direction of air flow.)



2) Slide in the fan and the fan grill assembly to the back side heatsink as shown in the diagram. The bolt head should protrude into the groove of the heatsink. After centering the fan on the heatsink, tighten the fan nipples.

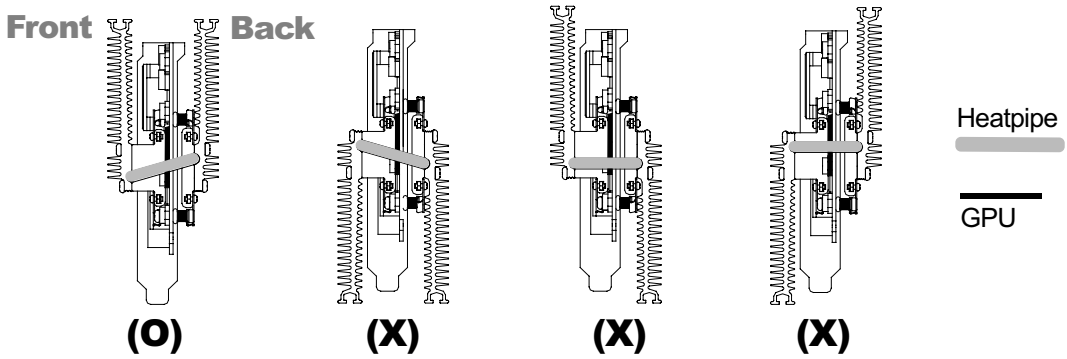


3) Insert the 2 bolt heads on plate link assembly about 5mm into the grooves on the front/back side heatsinks then tighten the nipples by hand.



Things to Check

1. The heatpipe installed on the graphics card should look exactly like the diagram below labeled (O). Check the diagram to see if you have correctly installed it.



2. After reinstalling the graphics card, turn on the computer, and check to see that the Front Side Heatsink and the Back Side Heatsink are at similar temperatures. (Leave the computer running for a few minutes and then confirm the temperature difference by turning the computer off and touching both of the heatsinks with your hands.)

❖ **If the two heatsinks are not at similar temperatures, check the following :**

1) Is the thermal grease properly spread onto the five areas ?

2) Are the GPU and the Front Side Heatsink Base tightly in contact ?

3) Is the heatpipe properly contacting the heatsinks ?

3. Zalman does not recommend overclocking the graphics card. We are not responsible for any damages caused by overclocking.
4. Read the manual fully before installing the product. If you are not confident in installing the product, contact your local reseller for assistance. Please note that Zalman is not responsible for any problems caused by the incorrect installation of the product on the graphics card.
5. If the heatpipe is tampered with or scratched by a sharp object, it may not function properly. Please handle with care.
6. After successfully installing the graphics card, do not shake or exert excessive force on any of the heatsinks. If you do, the bolts or the nuts that hold the plate spring may become loose.

* Warranty Period : 3 Years. Covers free after-sales service (shipping cost not included)

* The specifications of any product may change without prior notice to improve the performance thereof.